

## REMARKS

Claims 1 to 21 are currently pending in the present application.

Claims 1, 18 and 20 have been rejected under 35 U.S.C. § 102(b)<sup>1</sup> as being anticipated by U.S. Patent No. 6,247,163 to Burch et al. ("Burch").

In order for a claim to be anticipated under 35 U.S.C. § 102, a single prior art reference must disclose each and every element of the claim in exactly the same way. See Lindeman Maschinenfabrik v. Am. Hoist and Derrick, 730 F.2d 1452, 1458 (Fed. Cir. 1984).

Independent claim 1 recites a method for automatically mapping state elements between a first circuit and a second circuit, that includes, *inter alia*, an inversion detection phase including detecting whether the mappings are inverse mappings.

As discussed in the specification, an inversion detection phase is employed to determine the polarity (direct vs. inverse mapped status) of the mappings and to validate the mappings identified in the structural phase. See Specification, page 5, lines 1-3. It is respectfully submitted that the Burch reference does not disclose (or even suggest) this feature of independent claim 1.

The Office Action asserts that the Burch reference discloses this feature in the logic discussion on cols. 3 to 5. However, this section does not, in fact, disclose detecting whether the mappings are inverse mappings. Rather, this section defines the conditions for finding equivalence by semi-inductive predicates, but does not indicate or mention an inversion detection phase, in which mappings are detected as having reversed polarity. Indeed, no such detection is mentioned, or even suggested, at all by Burch.

In regards to failure by Burch to mention an inversion detection phase, the Office Action asserts that "Burch teaches a functionally equivalent process", in particular, that col. 4, lines 57 to 67 of Burch disclose a purported refinement to the Burch mapping process that assumes both true and false latch output values, and that the polarity or opposite true/false value in any latch output would be inherently detected. It is respectfully submitted, however, that such assertions are unsupported, and moreover, do not demonstrate a disclosure of an inversion detection phase. In particular, col. 4, lines 57 to 67 do not refer to opposite or inverted mappings, as suggested by the Office, but rather merely to unequal latch states. That is, col. 4, lines 57 to 67 simply refer to a

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<sup>1</sup> Applicants note again that the Burch reference does not qualify as prior art under §102(b) as it was not issued until June 12, 2001, which is after the filing date of the present application, March 9, 2001.

state with respect to a particular latch  $l_0$  as unequal to the state with respect to another latch  $l_1$ . (See col. 5, lines 2 and 4, which makes reference to “ $S(l_0) \neq S(l_1)$ ”). Moreover, such a reference to unequal latch states is made within the context of making a “false assumption” to prove by contradiction that if a certain latch mapping  $M_1$  is a subset of another latch mapping  $M_0$ , then for every state  $P_{M_0}(S)$  implies  $P_{M_1}(S)$ . In particular, it is assumed that there exists a state  $S$  such that  $P_{M_0}(S)$  is true and  $P_{M_1}(S)$  is false but such an assumption leads to the conclusion that if  $P_{M_1}(S)$  is false then there exists mapped latches with unequal states (e.g.,  $S(l_0) \neq S(l_1)$ ), which necessarily implies that  $P_{M_0}(S)$  must also be false, which contradicts the assumption that  $P_{M_0}(S)$  is true. Hence, the reference to unequal states between mapped latches  $l_0$  and  $l_1$  is merely part of a theoretical exercise to demonstrate that such unequal states cannot exist. Indeed, col. 4, lines 44 to 45 explicitly states the latches  $l_0$  and  $l_1$  are mapped together if and only if  $M(l_0, l_1)$  is true. See also col. 1, lines 65 to 66. Accordingly, such assertions by the Office Action with respect to col. 4, lines 57 to 67 are unsupported.

It is therefore submitted that Burch does not anticipate the subject matter of independent claim 1.

As independent claims 18 and 20 recite features analogous to those of claim 1, it is submitted that they are also not anticipated by the Burch reference.

Withdrawal of the rejection of claims 1, 18 and 20 under 35 U.S.C. § 102 is therefore respectfully requested.

Claims 2-17, 19 and 21 have been rejected as being unpatentable under 35 U.S.C. §103(a) over Burch in view of U.S. Patent No. 6,651,225 to Lin et al. (“Lin”).

In rejecting a claim under 35 U.S.C. § 103(a), the Examiner bears the initial burden of presenting a prima facie case of obviousness. In re Rijckaert, 9 F.3d 1531, 1532, 28 U.S.P.Q.2d 1955, 1956 (Fed. Cir. 1993). To establish prima facie obviousness, three criteria must be satisfied. First, there must be some suggestion or motivation to modify or combine reference teachings. In re Fine, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988). This teaching or suggestion to make the claimed combination must be found in the prior art and not based on the application disclosure. In re Vaeck, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991). Second, there must be a reasonable expectation of success. In re Merck & Co., Inc., 800 F.2d 1091, 231 U.S.P.Q. 375 (Fed. Cir. 1986). Third, the prior art reference(s) must teach or suggest all of the claim limitations. In re Royka, 490 F.2d 981, 180 U.S.P.Q. 580 (C.C.P.A. 1974).

It is submitted that the Lin reference fails to cure the deficiencies of the primary Burch reference discussed above with respect to claim 1, and that therefore, the combination of Burch and Lin does not disclose or suggest each of the features of independent claims 1, 18 and 20. In particular, Lin also does not mention or refer to inverse mappings at all, let alone detecting whether the mappings are inverse mappings.

It is accordingly submitted that the combination of Burch and Lin does not render obvious all of the features of independent claims 1, 18 and 20, or of their respective dependent claims 2 to 17, 19 and 21.

Accordingly, withdrawal of the rejection of claims 1 to 21 under 35 U.S.C. § 103(a) is therefore respectfully requested.

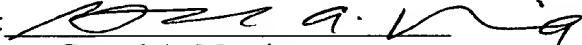
#### CONCLUSION

All issues having been addressed, it is believed that the present application is in condition for allowance. Prompt reconsideration and allowance of the present application are respectfully requested.

Respectfully submitted,

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Dated: 8/9/05

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